

AMENDMENT TO THE CLAIMS

1. (Original) An operating method for a data storage device comprising steps of:

energizing a heating element proximate to a transducer portion of a head during an intermittent period prior to a read or write operation by supplying a signal or current having a relatively low amplitude to provide a relatively low grade thermal response or energization relative to energization of an inductive or write transducer element of the head; and
de-energizing the heating element for the read or write operation.

2. (Original) The operating method of claim 1 and further comprising:

re-energizing the heating element following the read or write operation.

3. (Original) The operating method of claim 1 wherein the heating element is energized via a controller including a suspend mode and comprising the step of:

suspending the low grade energization of the heating element during the intermittent period prior to the read or write operation.

4. (Original) The operating method of claim 1 and comprising the step of energizing the heating element prior to the read or write operation includes the step of:

supplying a current or signal having a relatively high amplitude prior to the write operation to preheat the transducer portion prior to the write operation.

5. (Original) The operating method of claim 3 and further comprising the step of supplying a current or signal having a relatively high amplitude to preheat the transducer portion prior to the write operation during the suspend mode.

6. (Original) The operating method of claim 1 wherein the heating element is energized by a controller including an intermittent heating mode and a preheat mode and the controller supplies a low signal or energization relative to energization of the inductive or write transducer element of the head during the intermittent period for the intermittent heating mode and a higher signal or energization to preheat the transducer portion prior to the write operation in the preheat mode.

7. (Original) The operating method of claim 6 wherein the controller supplies a multiple amplitude signal or current to provide the low grade signal or energization during the intermittent period and the higher signal or energization during the preheat mode to preheat the head.

8. (Currently amended) An operating method for a data storage device comprising steps of:

having a write signal_{write} or a read signal_{read} during a first period t_0-t_1 and a write signal_{write} or a read signal_{read} during a second period t_2-t_3 and providing a signal_{heat} or current_{heat} to energize a heating element proximate to a transducer portion of a head during an interim period t_1-t_2 ~~spanning between the first and second periods~~, and

de-energizing the heating element during the first t_0-t_1 and second t_2-t_3 periods.

9. (Original) The operating method of claim 8 wherein the signal_{heat} or current includes a first amplitude to provide a first thermal response and a second amplitude higher than the first amplitude to provide a second thermal response.

10. (Original) The operating method of claim 8 wherein signal_{heat} or current has a relatively low amplitude to provide a relatively low grade thermal response relative to energization of an inductive or write transducer element of the head.

11. (Original) An operating method for a data storage device comprising steps of:

energizing a heating element proximate to a transducer portion of a head during an intermittent period prior to a read or write operation by supplying a signal or current to provide a relatively low grade thermal response to provide intermittent heating; and

energizing the heating element by supplying a signal or current to provide a higher thermal response prior to a write operation to preheat the head.

12. (Original) The operating method of claim 11 wherein the heating element is energized by a controller including an intermittent heating mode and a preheat mode and the controller supplies a low grade signal or current to provide the intermittent heating and a larger amplitude signal or current to preheat the head for write operations.

13. (Original) The operating method of claim 12 wherein the controller supplies a multiple amplitude current or signal to provide the low grade thermal response for the intermittent heating and the higher thermal response to preheat the head.

14. (Currently amended) A device comprising:
a head including a transducer portion to read or write relative to ~~the~~a recording media; and
a heater and a controller coupled to the heater and the controller configured to energize the heater during an intermittent period prior to a read or write operation to provide a relatively low grade thermal response relative to energization of an inductive or write element of the head and operable to de-energize the heater for the read or write operation.
15. (Original) The device of claim 14 wherein the controller includes a suspend mode to suspend the low grade energization of the heater.
16. (Original) The device of claim 14 wherein the controller includes multiple heating modes including an intermittent heating mode to energize the heater to provide the relatively low grade thermal response and a preheat mode to provide a higher thermal response relative to the low grade thermal response to preheat the transducer portion of the head.
17. (Original) The device of claim 14 wherein the controller energizes the heater during an interim period t_1-t_2 between read or write periods t_0-t_1 and t_2-t_3 .
18. (Original) The device of claim 14 wherein the heater is separate from a transducer element or transducer elements of the head.
19. (Original) The device of claim 18 wherein the heater includes a resistive heating element.

20. (Original) The device of claim 15 wherein the controller energizes the heater to preheat the head prior to a write operation during the suspend mode.